109658 3D3

CH2M HILL

MEMORANDUM

TO: Donna McCartney

FROM: Martha Monserrate MM

DATE: May 15, 1989

SUBJECT: C&D Residential Well Sampling Protocols

Attached is more information on the requirements we followed in regard to the preservatives used for the October, January, and April sampling. The first page is an excerpt from the EPA Compendium of Field Operations Methods which cites the use of American Chemical Society (ACS) grade nitric acid. The second is an excerpt of Fisher Chemicals catalog. Note that the "Certified" and "Reagent" grades that we used meet or exceed ACS standards. However, Colleen Walling, CRL, says that for metals sampling, we really should use HPLC grade, which is two levels above what we have used.

APRIL 1989 -

The same 40 % nitric acid, used in January 1989 sampling, was also used to preserve the samples collected in April.

All the preservatives used for C & D Recycling are currently being stored in CH2M HILL's laboratory.

TELEPHONE CONVERSATION RECORD

CALL TO: Chuck Tarshus, Corning

CALL FROM: Martha Monserrate/CH2M HILL

DATE: May 1, 1989

TIME: 9:00 A.M.

SUBJECT: Potential Interferences of Filtering Equipment with C&D Metals Sampling

PROJECT: NJO63110.ES.DE

I explained that CH2M HILL had used Corning Catalog #25943-500 -- the 500 ml Filter/Storage System with a 0.45 micron cellulose acetate filter membrane -- to obtain dissolved metals samples from groundwater. I told him that the results showed a number of cases where dissolved metals concentrations were greater than total concentrations.

I added that groundwater pHs may have ranged from 5 to 7. Mr. Tarshus said there are no known problems in using the filters for the application I described.

NJC2/416

Using the Chemical Index

Baker Instra-Analyzed grade (or equivalent) recommended by Colleen Walling

Chemicals can be sold only to institutions, to full-time educators, and to other professionals, on purchase order or organization letterhead. We are not permitted to honor student orders.

All products except USP/NF/FCC Grade are for laboratory or manufacturing use **only** — not food, drug, or household use. (See **Toxic Substances Control Act** information on next page.)

Chemicals are listed alphabetically. These listings contain other valuable information. Such as chemical formulas. Purity grades and minimum specifications, if applicable. Chemical Abstract Service (CAS) Registry numbers. And DOT classifications, if applicable.

The following paragraphs define terms used in the listings and also give ordering information. If you have questions, just phone your Fisher Customer Support Center.

Additional Technical Help and Information . . .

. . . is just a phone call away. Because Fisher Chemicals are backed by the Fisher tradition of quality and service. Fisher chemical specialists are always available to answer technical questions and help solve problems. Phone **201-796-7100** and ask for "Chemical Services."

There's also a dedicated technical hotline for Biotechnology products — including molecular biology, cell biology, fermentation/bioprocessing, scintillation cocktails. Call **1-800-334-1475.** And our Immunoreagent and Clinical Products customers can call **1-800-431-1861.**

Purity Grades

Fisher OPTIMA™ Grade — provides the increased purity necessary for residue pesticide analysis, selected GC/MS solvent and instrumental work. Can be used for HPLC, Pesticide UV and GC. Four solvents have GC/MS analysis.

Fisher Certified ACS Grade — meets or surpasses latest American Chemical Society standards for purity (the universally accepted specification for reagents). That purity is detailed by an **actual lot analysis** on each label. (Hence the detailed lot analysis of a specific Fisher Certified ACS reagent you purchase will meet or surpass purity shown in the index description.)

Fisher Certified Grade — similar to Fisher Certified ACS Grade except we have established the purity standard where none exists in the ACS. An Actual Lot Analysis is on the label.

Fisher Reagent Grade — meets or surpasses latest ACS standards for purity when available, or the purity standard established by us if none exists in the ACS. Purity guaranteed to meet the Maximum Limits of Impurities printed on the label; this grade does not have an Actual Lot Analysis on the label.

USP/NF/FCC Grade — meets or surpasses specifications in latest editions of United States Pharmacopeia (USP), the National Formulary (NF), and/or Food Chemicals Codex (FCC).

Purified Grade — designates chemicals of quality where there are no official standards, e.g., inorganic chemicals for manufacturing uses.

Practical Grade — sufficiently high quality for use in many syntheses and other applications.

Technical Grade — selected commercial grades, clean and of reasonable chemical purity. Where usable, this is the most economical grade.

Fisher Biotechnology Grades include:

Electrophoresis Grade — for electrophoresis methods.

Ultracentrifugation Grade — for ultracentrifugation methods or techniques.

Enzyme Grade — for enzyme reactions.

Tissue Culture Grade — for use in tissue culture techniques.

Molecular Biology Grade — for molecular biology procedures such as hybridization, bacteriophage extraction, plasmid preparation, nick translation, etc.

Biotech Grade — for one or more biotechnology procedures.

Note: Kodak® Organics — fall into Reagent, Practical, and Technical grades, with specifications generally determined by melting or boiling point.

Packaging

Fisher is 100% metric. This handy conversion chart gives you the metric equivalent of the avoirdupois sizes you may have been using.

Avoirdupois	Metric
Liquids	
1 pt	500mL
1 qt	1 liter
5 pt	2.5 liters
1 gal	4 liters
5 gal	20 liters
Solids	
1 lb	500g
5 lb	2.5kg
100 lb	50kg

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6.1.4 Responsibilities

Responsibilities are described in Subsection 6.1.6. General responsibilities are assigned as follows

- The SM (and project team) will determine the number and type of samples to be collected and analyses to be performed; the EPA RPM approves work plan.
- Equipment manager will obtain the proper grades and types of preservatives and bottles.
- Sampling personnel will collect a representative sample and, if necessary, will add the pro sample preservatives (as defined herein) once the samples have been collected.

6.1.5 Records

The preservatives used for each bottle are recorded on the sample tag or label. Tags and labels discussed in Subsection 6.2.6; examples of completed tags are shown in Subsection 5.1.6. Shipp records are maintained as part of the chain-of-custody documentation. (See Section 4 of this comp dium.)

6.1.6 Procedures

The procedures in this subsection are presented in the chronological order of a typical samp episode. Exhibit 6-1 summarizes the sampling process. Procedures presented here are gene[illegible]n a proach to regional differences is presented in Subsection 6.1.7.

6.1.6.1 Activities Before Sampling

1. In addition to the activities detailed in Subsection 5.1.6.1 for reserving laboratory space, the SM (or designee) obtains sample bottles by contacting an EPA authorized requester at the Regional Sample Control Center (RSCC) who orders the necessary bottles. (Currently, I-Chem Research in California (415/782-3905), runs the official bottle repository for the Superfund program.) Exhibit 6-2 lists the types of bottles available from the repository and summarizes the bottle requirements for each class of sample (as presented in the *User's Guide to the CLP*, December 1986).

2. At the same time, the SM (or designee) must order the chemicals necessary to preserve the samples once they are collected. The chemicals that may be used include the following:

- Nitric acid, American Chemical Society (ACS) grade, 16N
- Sodium hydroxide, ACS grade, pellets
- Sulfuric acid, ACS grade, 37N
- Hydrocholoric acid, ACS grade, 12N
- Sodium thiosulfate, ACS grade, crystalline
- Mercuric chloride, ACS grade, powder